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CIRCULATION ELEMENT

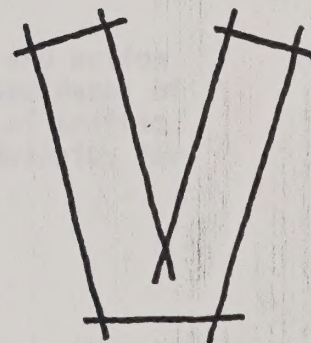
Purpose & Scope

The purpose of the circulation study is to provide a comprehensive analysis of the existing circulation system and to identify areas for improvement. The study will include a detailed inventory of the existing circulation system, including all major roads, streets, and highways. It will also include a detailed analysis of the existing circulation system, including all major roads, streets, and highways. The study will also include a detailed analysis of the existing circulation system, including all major roads, streets, and highways.


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City-Wide Traffic Study

[Roseville (Calif.)
Planning Commission
[1982]]

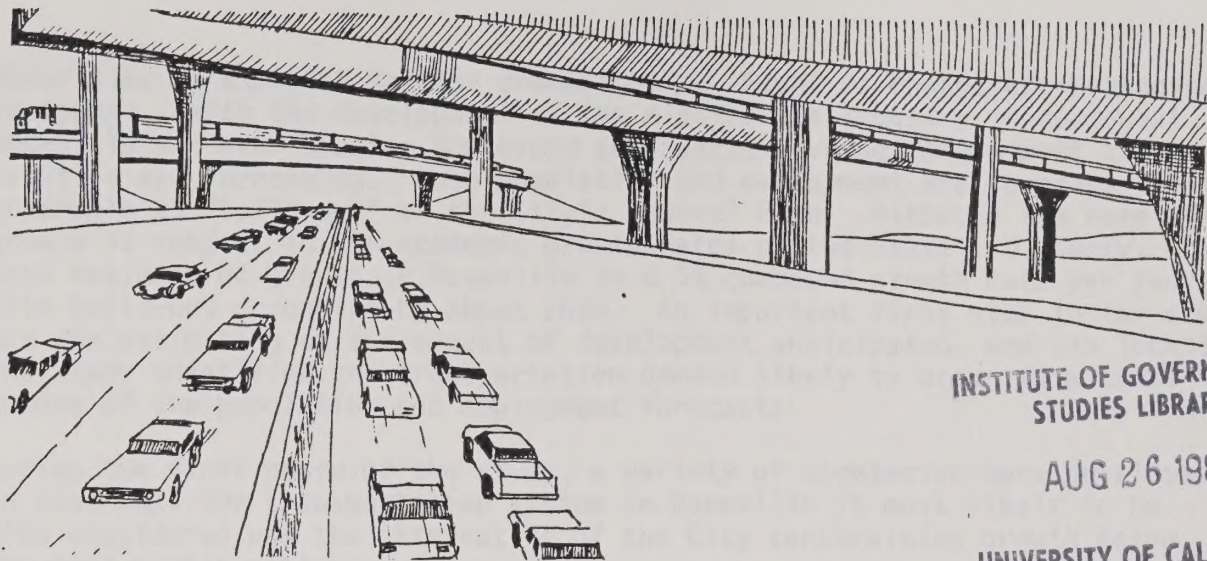


CIRCULATION
ELEMENT



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CIRCULATION ELEMENT

Purpose & Scope

The purpose of the Circulation Element is two-fold. First, existing circulation conditions are analyzed to determine critical areas of concern so that policies can be implemented to resolve problems and provide for orderly growth. Second, proposed future land use will be examined in the context of necessary circulation needs. Inherent in a good circulation system is the safe and efficient movement of people and goods.

The Circulation Element consists of numerous findings, policies and action plans directed toward the solving of existing problems and the avoidance of future problems. The element also includes discussion on level of traffic service, future roadway improvement and funding plans and methodologies for the incremental evaluation of the circulation system.

City-Wide Traffic Study

The source for most of the information contained in the Circulation Element is the Roseville Circulation Study, Final Report, July, 1982, prepared by PRC Voorhees in association with Angus McDonald & Associates, Inc. The study itself consists of two documents:

1. The final report consisting of (a) future travel demand; (b) alternate strategy analysis; (c) recommendation of the system; (d) phasing.
2. The appendices consisting of six (6) memoranda.

Population and employment growth in South Placer, particularly the City of

Roseville, is expected to rise dramatically. Signs of change are beginning to appear. With the development of the electronics industry in northwest Roseville and near Douglas Boulevard and Sunrise Avenue, employment opportunities are increasing. Both population and employment are forecast to quadruple to "build-out" of the City's General Plan. Although the rate of growth is subject to the economic growth rates of the State and County, the best estimate of growth in Roseville is a 5% compound growth rate per year, with build-out occurring by about 2010. An important first step in the study was the estimating of the amount of development anticipated, and its location. The study quantified the transportation demand likely to occur as a consequence of the population and employment forecasts.

During the first phase of the study, a variety of strategies were developed to test what the transportation system in Roseville is most likely to be. Also considered was the alternative of the City constraining growth below the best market estimate.

During the second phase, the consultants discussed with an ad-hoc steering committee (consisting of members of the City Roseville staff, and members of the City Council, Planning Commission and Transportation Commission), the plan recommendations and the phasing program. A City-wide strategy or Transportation System Management was also presented to the committee. The consultants made cost estimates for the increased supply of transportation to see how much capital was needed for this increased supply, what sources of funding could be used, and what changes in City policy must be made to insure adequate funding.

The study documents the first and second phases of the study. The study was written to allow the policy makers of the City to review the consultants' estimates of the future, and provide a guide to the allocation of funds for transportation systems, and the phased growth up to build-out.

As forecasting of growth and development is an inexact science, the consultants have produced a straightforward manually-applied methodology to allow the City to monitor its growth and compare its highway needs against the phased recommendations.

Specific Findings & Policies

A. TRAFFIC CIRCULATION STANDARDS

Finding:

Based on a State of California grading system, there is a way of determining the amount of roadway capacity and traffic congestion that could occur or is acceptable in a community. This system is based on six levels (A--best--through F--worst) of service measured by an increasing amount of traffic volumes moving from Level A through Level F. Concurrently, delays experienced at intersections also increase as the level of service moves from Level A to F.

As indicated in the technical addendum for the Circulation Element, the various levels of service for traffic volumes and delays at intersections

can be quantified. Based on known traffic volumes and intersection delays within the community, it has been determined by the City (by adopted policy) the maintenance of a Level of Service "C" is the standard that is most acceptable to Roseville. Since each level of service is actually a range of traffic zones and percentages of intersection delays, the level of service should be specified as being one of the following, each representing Level of Service C: B/C, C or C/D.

Policy No. 1: For the City of Roseville, the Level of Service C shall be used in determining the roadway capacities and intersection delays for all freeway, arterial and collector streets. For long-range development, Level of Service C need not be strictly maintained if other policies and action plans indicate that a lesser level of service may be acceptable on a short-term basis providing there are sufficient overriding considerations.

B. POPULATION AND CIRCULATION

Finding:

To determine the ultimate population for Roseville based on traffic circulation limits, the following information is utilized:

1. The existing roadway system and the degree to which it can be expanded or modified;
2. Future roadway systems that can be feasibly implemented;
3. The level of service traffic standard to be maintained (Level of Service C);
4. Existing land use patterns;
5. Projected growth rate (5% compounded average annual rate).

Based on the above factors, a maximum population of 92,000 could be allowed providing that a majority of the new development would occur in the northwest part of the City because of the relationship of housing to the potential jobs created in the industrial sector. With a current adopted population potential of from 65,000 to 70,000 people, acceptance of the higher population limit based on the City-wide traffic study, an additional 22,000 to 27,000 people could be accommodated in Roseville.

An integral part of making a maximum population of 92,000 workable within the context of the circulation system was the allocation of the new population increment (22,000 to 27,000) on the basis of maintaining a balance of jobs and housing within areas of the City. This balance is necessary to reduce the transportation access and the resulting street improvements across the limited connections over the railroad and Interstate 80.

Policy No. 2: If an ultimate population of 92,000 is to be allowed in the City of Roseville, then the incremental growth of 22,000 to 27,000 additional people should be allocated on the basis of maintaining a balance of jobs and housing to minimize impacts on the intra-city road systems.

C. TRAVEL DEMAND

1. The developed area of Roseville is currently relatively compact and

is centered around the freeway (I-80) and the railroad tracks. Historically, the limited capacity crossing both these facilities has presented barrier problems to east/west movements in the City. With population and employment projected to increase substantially, the demand for travel will thus increase significantly and will be closely tied to the distribution of development. Large increases in travel will occur both within and between the three sub-areas of the City, that is east (of I-80), central and northwest. Travel demand will be re-oriented from the current focus (towards I-80 and south to Sacramento) internally to Roseville destinations and particularly to the northwest of the City.

Summary of Findings:

- While there will be a re-orientation of local traffic to internal destinations, the major employment centers in northwest Roseville and the Sunset areas will attract travel from the Sacramento area which will pass through Roseville.
- Future travel demands will not significantly exceed available capacity across the Sacramento County line.
- Regional highway capacity needs will be greater to the north of Regional where there is currently relatively little highway infrastructures.
- Within Roseville, the major increases in travel demand will be in the east/west direction on the east side of the City, and in the north/south direction in the northwest of the City.
- Significant increases in capacity will be necessary across both the freeway and the railroad tracks.
- The projected travel growths will be well beyond the capacity of the current highway system, even with certain improvements already planned.

Policy No. 3: In order to meet the projected travel demands, major additional highway capacity (expressed as screenlines that are a composite of individual roadways within a corridor) that will be needed City-wide includes:

- Eight (8) highway lanes east of I-80, running in an east/west direction, to supplement existing capacity on Douglas and Cirby;
- Twelve (12) additional lanes across I-80;
- Six to eight (6-8) lanes across the railroad tracks in the central area of Roseville;
- Major improvements in highway capacity between I-80/Riverside and Subway undercrossing of the railroad;
- Eight to twelve (8-12) lanes in a north/south direction to supplement existing highway lanes in the northwest of the City on the existing Route 65 corridor between Baseline and Blue Oaks;

- Six to eight (6-8) lanes in an arc across the northern side of the City from Douglas/Rocky Ridge to Highway 65;
- Four (4) additional highway lanes on the east side of the City in a north/south direction;
- An east-west arterial system in the northwest of the City.

2. Findings:

Specific roadway needs by area of the City are described below:

Eastern city principal highway needs will be in the east/west direction to accommodate travel growths of three to four times current levels. A total of eight additional highway lanes will be needed between Sunrise Avenue and Sierra College, to supplement existing highway lanes on Douglas Boulevard and Cirby Way. Less additional capacity will be required for north-south travel, although up to four highway lanes will be needed over today's levels.

Policy No. 4: In order to meet projected travel demands in the eastern area of the City, the following improvements need to be implemented (see Figures 1 and 2):

- Douglas to six-lane arterial;
- Rocky Ridge to four-lane arterial;
- Sierra College to four-lane arterial;
- Possible need for improvements to Sunrise Avenue;
- North Cirby Way as four-lane arterial;
- New two-lane roadway running north and/or west from Rocky Ridge/Douglas, to connect across I-80 to north of the City.

Findings:

Central City -- Projected future travel demands across the I-80 corridor will require the existing seven to eight lanes of highway capacity to be increased to sixteen to twenty-one lanes. The need will be higher on the eastern side approaches to I-80 (traffic from the eastern side of the City accessing the freeway). There will be a need for an additional ten to twelve highway lanes bridging I-80.

Travel across the railroad tracks in the central city is projected to grow by almost three times. This demand will have three components: access to the projected employment and housing growth in the south-west of the City; travel between east and west/northwest Roseville; travel between Sacramento and the employment centers in northwest Roseville.

Policy No. 5: In order to meet projected travel demands in the central area of the City, the following improvements need to be implemented (see Figures 1 and 2):

KEY:



4 LANE ARTERIAL

6 LANE ARTERIAL

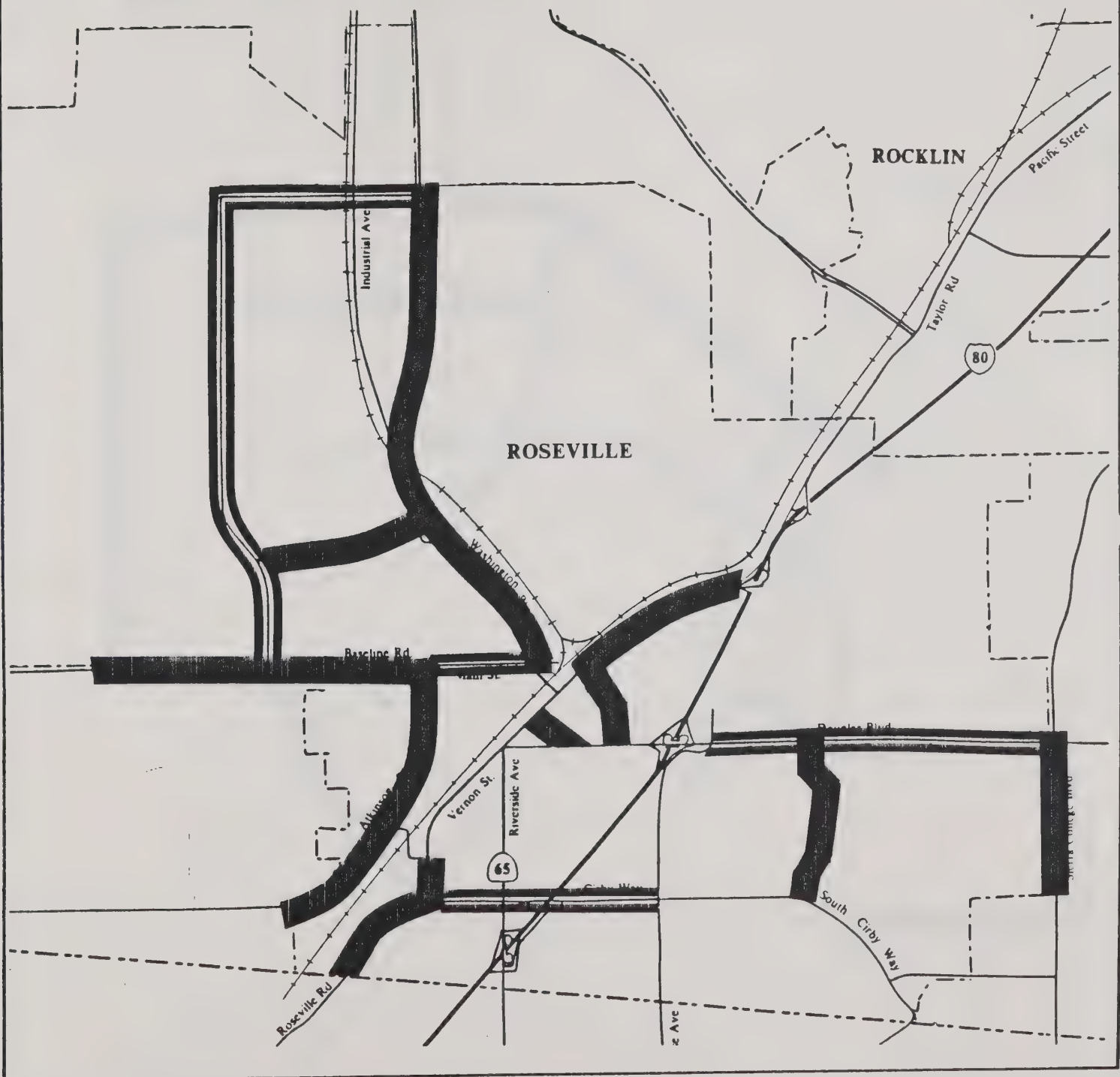





Figure 1

HIGHWAY STRATEGY: LOCATION OF ROADWAY IMPROVEMENTS

KEY:

-  2 LANE ARTERIAL
-  4 LANE ARTERIAL
-  6 LANE ARTERIAL
-  4 LANE EXPRESSWAY

NOTE:

-  PROBABLE LOCATION (solid)
-  CONCEPTUAL ALIGNMENT (dashed)

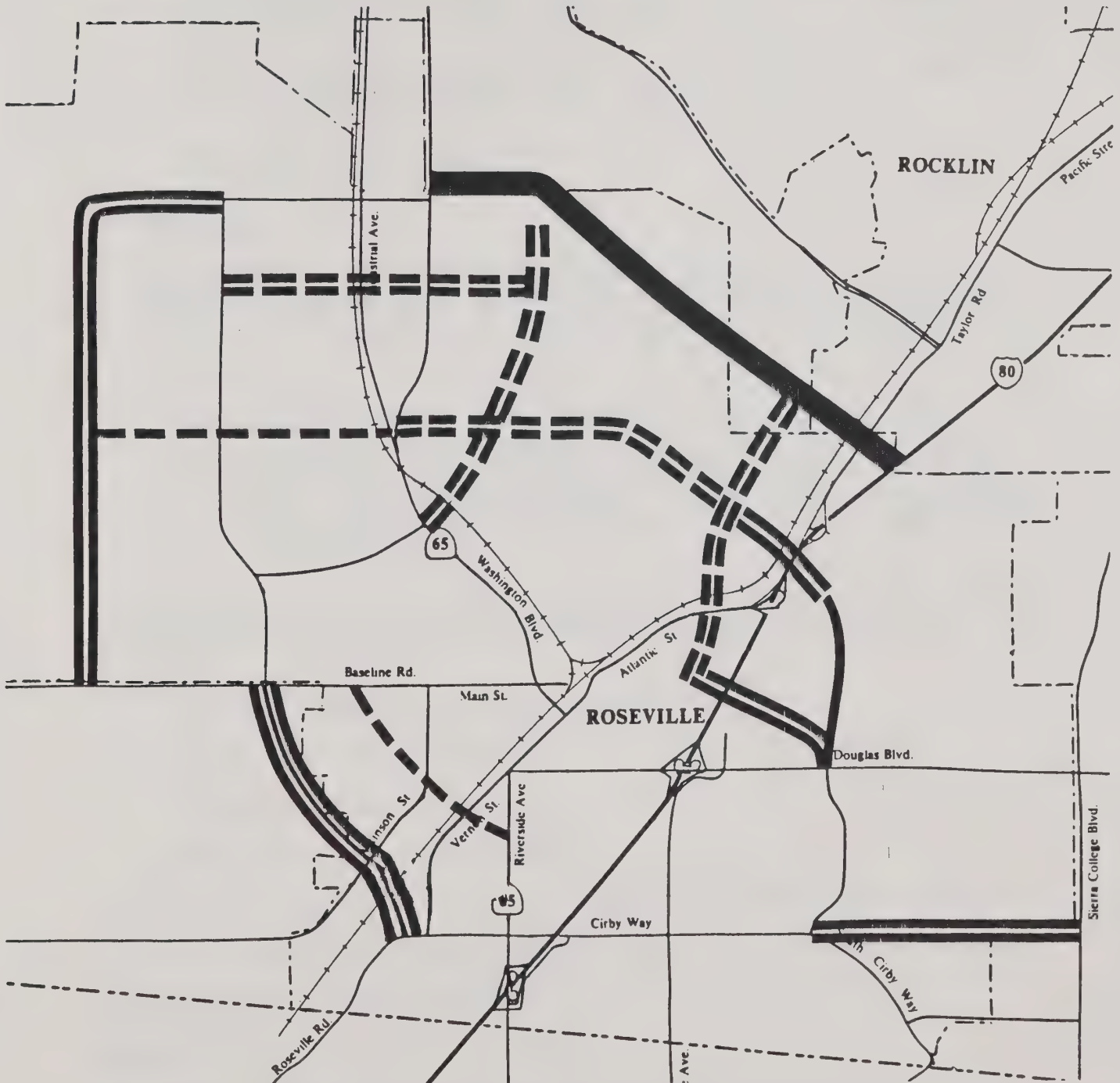


Figure 2

HIGHWAY STRATEGY: LOCATION OF NEW ROADWAY PROJECTS

- Placer Center Arterial overcrossing as four-lane arterial;
- New I-80 overcrossing as four-lane arterial;
- Reconstruction of the Subway undercrossing to a four- or six-lane highway;
- Provision of two additional lanes across the tracks, somewhere between Route 65 and the southern City limit;
- Major improvements to the approach roads on either side of the railroad, including Vernon, Cirby and Riverside;
- New Foothills Boulevard extension from Baseline to Riverside as four- or six-lane arterial.

Findings:

Northwestern City -- The forecast travel demands will require an additional ten to twelve highway lanes running north-south between Baseline and Blue Oaks Road. There will also be a considerable demand for travel east-west in this area that will far exceed existing capacity.

Travel demand across the northern margin of the City will require that the proposed Route 65 Bypass be at least a four-lane expressway. To meet total demand, either two (2) expressway lanes, or up to four (4) arterial lanes, will be necessary. The 65 Bypass will provide at best circuitous access between east Roseville and the north/northwest areas of the City, however.

Policy No. 6: In order to meet projected travel demands in the northwest area of the City, the following improvements need to be implemented (see Figures 1 and 2):

- Foothills Boulevard to six-lane arterial;
- Route 65 to four-lane arterial;
- Route A to four-lane arterial;
- Blue Oaks to six-lane arterial;
- Four-lane arterial east of and parallel to Route 65;
- Six lanes of east-west arterial between Route A and Blue Oaks Road.

D. PHASING OF ROADWAY IMPROVEMENTS

Findings:

High rates of growth are projected throughout the buildout scenario for the City. Three key periods have been identified, however, each of which will be characterized by a rather different emphasis in either the rate or type of growth. The identification of these three periods provides the key basis for the phasing element of the capital improvement program. The three periods are:

Period 1: (1982-1985) Low Growth Activity

The upcoming three years are projected as a period of relatively low growth, largely due to current economic conditions.

Current problems will be the key issues in this period (1982-1985). Growth will be principally employment-based, and be concentrated in two areas: Placer Center and the northwest of the City (Hewlett Packard development). Otherwise there will be little growth in this period. Traffic problems will focus on the Douglas Boulevard/I-80 interchange, and the surrounding approaches.

Period 2: (1983-1995) High Growth-Employment Bias

A period of very high growth, particularly in employment levels. During this growth period, the southeast City is projected to grow in population, virtually to build-out levels. Significant population growth will also occur in the northeast and southwest. These growths will result in very rapid increases in east-west travel movements, particularly on the eastern side of the City.

The faster growth in employment than in local population, will produce a north-south commute pattern whereby certain Roseville jobs will be filled by Sacramento County residents.

The early problem areas with regard to transportation will thus be in the east of the City, and the south of the City. These traffic problems will focus on freeway access routes, and north-south arterials across the City/County line. (See Figure 4.) Problems will be particularly focused on the Subway crossing area, as the link between the Sacramento County working population and Roseville jobs in the southwest City (area of Atkinson to Baseline), as well as to the north of Baseline in the Foothills Boulevard corridor.

Towards the end of the period, population growth in the northeast City, and continued growth in employment in the northwest, will lead to increasing problems in east-west travel to/from and across the freeway, in the north of the City. This will also place increasing pressure on the downtown area.

Period 3: (1995-2010) High Growth-Population Bias

Also a period of very high overall growth. Principal growth areas in this period will be in the northwest (employment and population), and the northeast (population). The majority of increased travel demand will thus be in the northern parts of the City, particularly the northwest, and necessary roadway improvements will be concentrated in these areas.

As local population levels approach build-out projections, a balance will be achieved between local workforce and local jobs. Regional commute travel will gradually be replaced by more localized travel patterns and east-west movements will predominate over north-south movements.

Key problem traffic areas will continue to be the I-80 overcrossings, particularly in the north, and the need for continuing additions to the roadway infrastructure in the northwest.

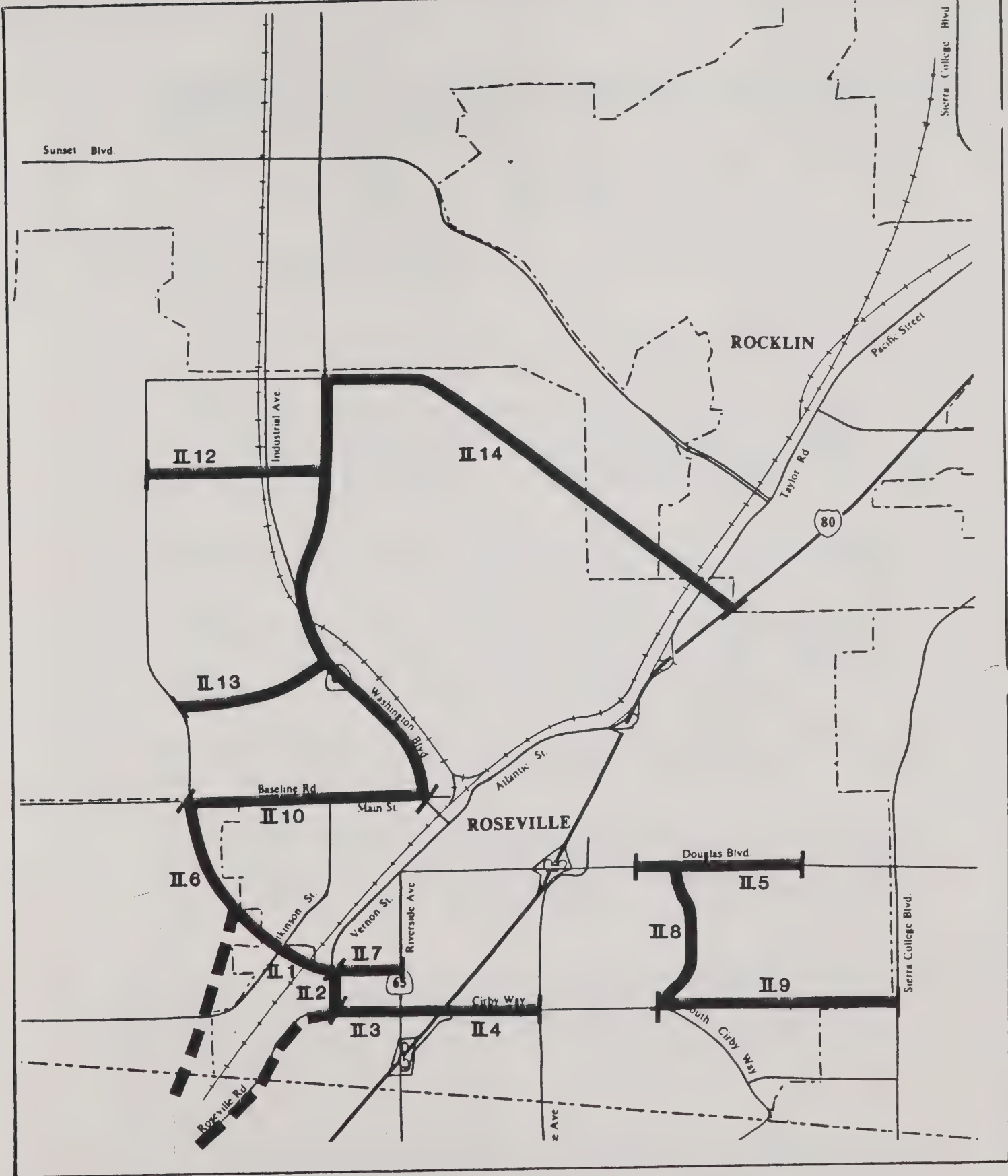


Figure 4
PERIOD 2 HIGHWAY PROJECTS

Policy No. 7: Based on the amount, location and timing of future growth in Roseville, specific roadway improvements should be implemented as indicated on the following tables:

Table 1	(current to about 1985)
Table 2	(1985-1995)
Table 3	(1995-2010)

E. FUNDING OF ROADWAY IMPROVEMENTS

Finding:

The three (3) primary funding sources to finance the construction of roadway facilities come from the State, City and private sectors.

The State Highway Account can provide funding for such State-related projects as Highway 65 Bypass, the undercrossing of the Southern Pacific Railroad tracks at Subway Road, and the overcrossing and interchange projects on I-80. To date, the only funding commitment from this source has been for the Highway 65 Bypass.

The City of Roseville has three (3) basic sources of funds for roadway construction. These are the highway users tax revenues, vehicle code fines and traffic impact fees. Each is described in more detail below:

Highway Users Tax: These are State-shared tax revenues distributed to cities and counties based on a formula allocation of the State-wide gas tax. Since the gas tax will be raised in the future, revenues to Roseville will probably exceed the 1982 amount of \$200,000.

Vehicle Code Fines: Roseville has been receiving about \$125,000 annually (1982) from these fines, and this funding source is expected to increase proportionately with the increases in population.

Traffic Impact Fees: This one percent fee levied upon all new construction is the greatest City-generated funding source for roadway improvements. While traffic impact fees may be increased for greater revenue, 2% is considered an upper limit because total infrastructure fees (for sewer, water, parks, etc.) would exceed 5 to 6 percent of construction costs.

Private sector financing is accomplished primarily through assessment districts whereby private development pays for the roadway improvements. For major City-wide roadway improvements, the City may participate in assessment districts by reducing the impact fees for properties within the assessment district.

Finding:

Total projected costs to implement all necessary roadway improvements are estimated to be \$115 million (1982 dollars). With a total of \$65 million relating to State highway facilities, the remaining \$50 million will require local financing. An additional \$15 million, necessary for long-term roadway maintenance, produces a total local funding requirement of \$65 million.

Neither City-generated revenues, nor the current traffic impact fee structure, will generate sufficient revenue to finance the total roadway pro-

TABLE 1

PHASED HIGHWAY IMPROVEMENTS: RECOMMENDATIONS FOR PERIOD 1 (Current to about 1985)

Ref. No.	Project Description and Location	Type of Improvement	No. of Lanes Added	Length (miles)	Total Cost (\$-m)
I.1	Widen Douglas Boulevard	Re-stripe existing pavement from 4L to 6L	+2L	0.4 mi.	
1.2	Build Placer Center Extension (Douglas to Harding)	New 4L roadway	+4L	0.8 mi.	\$1.28m
1.3	Placer Center I-80 Overcrossing	New Bridge plus embankment and approaches	+4L		\$1.75m
1.4	South Cirby Way widening Land Drive to Kenneth Avenue (Sacramento to)	Rebuild to 4L	+2L	0.2 mi.	\$0.40m

Signals:

Sunrise at Smith/Palm
 Sunrise at Kensington
 Placer Center Arterial and Harding
 Placer Center Arterial and Sunrise
 Harding and Atlantic

TABLE 2

PHASED HIGHWAY IMPROVEMENTS: RECOMMENDATIONS FOR PERIOD 2 (about 1985 to 1995)

Ref. No.	Project Description and Location	Type of Improvement	No. of Lanes Added	Length (miles)	Total Cost (\$-m)
II.1	Subway Undercrossing Improvement (Vernon-Atkinson)	Re-build undercrossing to 4L to 6L standard	+2L/ +4L		\$10.00m
II.2	Widen Vernon (Foothills-Cirby)	Re-stripe existing pavement, from 2L to 4L	+2L		\$ 0.40m
II.3	Widen Cirby Way (Vernon-Riverside)	Re-stripe existing roadway, plus some reconstruction, from 2L to 4L	+2L	0.5 mi.	\$ 0.60m
II.4	Widen Cirby Way (Sunrise-Riverside)	Re-stripe existing roadway, plus some reconstruction, from 2L to 6L	+4L	0.8 mi.	\$1.32m
II.5	Widen Douglas Boulevard (Sierra Gardens-1.3m east)	Reconstruct/widen exist- ing roadway, from 2L to 6L	+4L	1.3 mi.	\$2.41m
II.6	Build Foothills Boulevard (Baseline-Atkinson)	Construct new 4L roadway	+4L	1.1 mi.	\$1.72m
II.7	Build Foothills Boulevard (Vernon-Riverside)	Construct new 4L roadway	+4L	0.6 mi.	\$1.04m

(Table VI-2 continued on next page)

TABLE 2 (continued)

Ref. No.	Project Description and Location	Type of Improvement	No. of Lanes Added	Length (miles)	Total Cost (\$-m)
II.8	Build Cirby Way Extension (Rocky Ridge to Sierra College)	Construct new 4L roadway	+4L	1.7 mi.	\$2.72m
II.9	Widen Baseline Road/Main Street (Foothills Boulevard-Route 65)	Restripe existing pavement plus some reconstruction, from 2L to 4L	+2L	2.3 mi.	\$2.99m
II.10	Widen Route 65 (Fairground-City Limits)	Reconstruction of existing roadway, from 2L to 4L	+2L	3.0 mi.	\$3.90m
II.11	Zone 26 Arterial (Foothills-Route 65)	Build new 4L roadway	+4L	0.9 mi.	\$1.46m
II.12.	Widen Route A (Foothills-Route 65)	Reconstruction of existing roadway from 2L to 4L	+2L	1.1 mi.	\$1.41m
II.13	Build Route 65 Bypass (Route 65 to I-80)	Build new 4L expressway, plus Interchange at I-80	4L	3.3 mi.	

TABLE 3

PHASED HIGHWAY IMPROVEMENTS: RECOMMENDATIONS FOR PERIOD 3 (about 1995 to 2010)

Ref. No.	Project Description and Location	Type of Improvement	No. of Lanes Added	Length (miles)	Total Cost (\$-m)
III.1	Harding Boulevard (Breuner to Route 65 Bypass)	Build new 4L roadway	+4L	2.1 mi.	\$3.52m
III.2	Widen Douglas Boulevard (to Sierra College)	Reconstruct/widen roadway, from 2L to 4L	+2L	0.5 mi.	\$0.70m
III.3	Widen Foothills Boulevard (Blue Oaks-Baseline)	Restripe existing pave- ment, from 4L to 6L	+2L	3.1 mi.	
III.4	Build Antelope (North exten- sion)--(Baseline-Blue Oaks)	Build new 4L roadway	+4L	3.1 mi.	\$4.80m
III.5	Widen Blue Oaks (Foothills-Route 65)	Restripe and some recon- struction from 4L to 6L	+2L		
III.6	Blue Oaks Extension (Antelope Extension-Foothills Boulevard)	Build new 4L roadway	+4L	0.6 mi.	\$0.97m
III.7	Build Zone 22 Arterial (Antelope Extension-Route 65)	Build new 2L roadway	+2L	1.3 mi.	-\$0.91m

(Table VI-3 continued on next page)

TABLE 3 (continued)

Ref. No.	Project Description and Location	Type of Improvement	No. of Lanes Added	Length (miles)	Total Cost (\$-m)
III.8	Build Zone 25 Arterial (III.9 to Route 65 Bypass)	Build new 4L roadway	+4L	1.5 mi.	\$2.40m
III.9	Build Diamond Oaks North (Golf Course-Route 65)	Build new 2L roadway	+2L	1.5 mi.	\$1.35m
III.10	Build new K-80 Overcrossing (vicinity of Atlantic)	Construct new bridge and approaches	+4L		\$2.00m
III.11	I-80 Ramp Improvements (vicinity of Atlantic)	Reconstruction			\$7.50m
III.12	Build Rocky Ridge-North Extension (Douglas to I-80 at Atlantic)	Build new 2L roadway	+2L	1.8 mi.	\$1.56m
III.13	Build Diamond Oaks North (Golf Course--I-80)	Build new 4L roadway	+4L	1.6 mi.	\$2.56m
III.14	Build Diamond Oaks Road Extension (Shasta to III.13)	Build new 2L roadway	+2L	0.8 mi.	\$0.70m

gram. However, increasing traffic impact fees to just over 1.5% of construction value will generate revenues sufficient to meet local needs.

Policy No. 8: In order to produce sufficient revenue to implement necessary roadway improvements, the traffic impact fee should be increased from 1% to 1.5% of construction value.

F. MONITORING ROADWAY NEEDS

Finding:

To evaluate the effects of alternative development strategies on Roseville's future roadway improvement needs, a manual analysis tool has been developed as a part of the City-wide traffic circulation study, prepared by PRC Voorhees.

The technique allows the City staff to determine the locations and types of improvements needed for different development scenarios. These scenarios can consist of different levels and/or geographic distributions of future growth, representing any hypothesized development strategy. The tool can thereby be used to investigate the implications of alternative planning policies, on a stage-by-stage basis, between present conditions and build-out.

Policy No. 9: In order to monitor and evaluate the effects of development projects on the City-wide roadway system, the Roadway Needs Manual Analysis Tool, as provided in Technical Memorandum 5 of the Roseville Traffic Circulation Study, by PRC Voorhees, shall be utilized.



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